Winnecke's Comet.

1886.	Cape Mean Time. (h m s)	Comet – Star. Δα (m s)	Δδ (′ ″)	No. of Comps.	Observer.	Comet's App. R.A. (h m s)	Log. ($p \times \Delta$)	Comet's App. Decl. (° ′ ″)	Log. ($p \times \Delta$)	Red. to App. Place. (s)	Red. to App. Place. (″)	Comp. Star No.
Aug. 19	8 12 28.8	−0 44.77	−3 5.7	3.5	F	13 7 6.07	9.674	−0 34 2.8	0.690n	+0.83	−0.9	1
20	7 1 49.9	+0 50.87	+0 17.1	16.12	F	13 10 21.47	9.613	−1 8 17.8	0.684n	+0.84	−1.0	2
20	7 39 2.0	−1 10.10	−4 16.3	10.8	F	13 10 26.82	9.651	−1 9 14.0	0.686n	+0.85	−0.9	3
21	7 12 7.4	+1 37.91	−0 26.1	12.12	F	13 13 50.77	9.626	−1 45 1.9	0.681n	+0.85	−1.0	4
22	6 47 5.3	+0 13.99	−1 21.0	12.12	F	13 17	9.595	−2 21	0.675n	+0.87	−0.9	5
25	7 35 35.4	−1 18.82	+4 56.2	11.8	F	13 28 11.92	9.651	−4 16 3.0	0.670n	+0.92	−0.7	6
29	7 28 34.7	+0 27.69	+3 0.5	12.12	F	13 43 9.99	9.648	−6 53 12.4	0.653n	+0.98	−0.6	7
Sept. 4	7 34 15.1	−0 35.33	+4 31.4	12.12	F	14 7 9.98	9.658	−11 1 3.0	0.627n	+1.02	−0.9	8
16	7 43 5.3		+5 6.4	0.4	F			−19 41 47.4	0.558n	+1.27	+0.2	9
16	7 49 59.2	+1 2.77		3.0	F	15 1 51.61	9.682			+1.27	+0.2	9
17	7 38 19.5	−1 42.06	−0 16.1	16.12	F	15 6 50.35	9.674	−20 25 11.6	0.544n	+1.31	+0.4	10
18	7 36 44.7	+0 46.16	+0 32.6	16.12	F	15 11 56.35	9.673	−21 8 34.7	0.533n	+1.31	+0.3	11
19	7 31 29.1	−0 9.45	+5 4.4	8.8	F	15 17 7.49	9.669	−21 51 35.9	0.516n	+1.34	+0.4	12
20	7 25 58.0	−0 1.36	−2 15.4	26.12	F	15 22 22.77	9.664	−22 34 19.7	0.498n	+1.36	+0.5	13
25	7 52 47.7	−1 50.32	−2 18.1	16.12	F	15 50 12.10	9.695	−26 3 16.4	0.485n	+1.47	+1.0	14
26	7 40 27.8	−0 51.32	−2 14.9	16.12	F	15 55 58.06	9.684	−26 42 54.9	0.450n	+1.49	+1.1	15
27	9 9 22.4	+1 5.14	+0 53.6	10.8	F	16 2 14.06	9.739	−27 24 32.6	0.598n	+1.51	+1.1	16
30	8 50 22.4	+0 12.83	−4 23.5	16.12	F	16 20 24.50	9.738	−29 16 36.0	0.541n	+1.57	+1.5	17
Oct. 1	8 32 3.4		−3 19.3	0.4	F			−29 51 48.8	0.494n	+1.59	+1.6	18
1	8 41 7.9	+1 43.80		3.0	F	16 26 37.56	9.735			+1.59	+1.6	18
15	8 22 40.0	−0 20.12	+1 45.0	12.12	F	18 1 2.38	9.718	−35 54 33.6	0.257n	+1.88	+4.0	19

1886.	Cape Mean Time. (h m s)	Comet—Star Δα (m s)	Δδ (' ")	No. of Comps.	Obser-ver.	Comet's App. R.A. (h m s)	Log. (p×Δ)	Comet's App. Dec. (° ' ")	Log. (p×Δ)	Red. to App. Place. (s)	(")	Comp. Star No.
Oct. 18	8 28 25.2	−0 16.10	+1 24.7	16.12	F	18 29 8.26	9.717	−36 42 44.7	0.225_{n}	+1.91	+4.5	20
19	8 39 2.7	−0 29.02	+4 10.5	16.12	F	18 43 10.21	9.727	−36 57 8.9	0.253_{n}	+1.94	+4.8	21
21	9 8 57.4	+0 20.18	−0 37.7	16.12	F	18 49 48.25	9.751	−37 1 48.8	0.337_{n}	+1.95	+5.2	22
22	8 14 23.9	+1 18.95	−0 46.1	12.12	F	19 36 37	9.686	−36 54 20.0	0.084_{n}	+1.96	+5.4	23
29	9 1 40.3		−0 43.0	0.4	F				0.220_{n}	+2.01	+6.7	24
31	8 30 21.6		+0 5.7	0.4	F				0.049_{n}	+2.03	+7.1	25
31	8 41 4.9	−0 18.65		6.0	F		9.688			+2.03	+7.1	25
Nov. 2	8 12 45.7	−1 11.85	−0 25.4	10.8	F	20 1 13.60	9.633	−36 22 14.9	9.938_{n}	+2.03	+7.5	26
13	8 1 12.3		+2 37.9	0.4	F				9.935_{n}	+2.04	+9.0	27
13	8 11 32.1	−0 26.34		12.0	F		9.581			+2.04	+9.0	27
17	9 15 15.6		+2 36.4	0.4	F					+2.04	+9.5	28
17	9 23 36.6	+0 23.17		10.0	F	21 10 35.42	9.690	−32 23 3.5	0.283_{n}	+2.04	+9.5	28
19	9 42 58.4	+1 46.70	−0 7.8	5.5	F	21 29 33.74	9.707	−31 42 30.0	0.375_{n}	+2.03	+9.6	29
23	8 37 8.6	+0 32.88	−0 51.7	8.8	F	21 46 9.33	9.607	−30 21 47.3	0.212_{n}	+2.05	+10.0	30
25	8 55 16.9	+1 9.11	−1 8.1	8.10	F	21 54 7.76	9.635	−29 36 59.8	0.287_{n}	+2.03	+10.1	31
26	9 21 36.0	−1 41.73	+0 10.3	10.8	F	21 58 3.11	9.671	−29 15 12.2	0.363_{n}	+2.04	+10.1	32
29	9 9 15.4	+0 48.73	+5 39.9	10.8	F	22 9 7.47	9.651	−28 10 23.9	0.357_{n}	+2.03	+10.1	33

Notes.

Sept. 4. Bright moonlight: comet faint.

  18. Well condensed towards centre, but scarcely a stellar nucleus.

Oct. 29. Clouds prevented further observations.

Nov. 17. Faint from this date onwards.

Aug. 25. Observations made through cloud: not very good.

Sept. 16. Comet seen during a short break in the clouds.

Oct. 1. Moonlight and clouds; observations not very valuable.

Nov. 2. Faint in the moonlight.

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Winnecke.

Adopted Mean Places of Comparison Stars.

Comp. Star No.	R.A. 1886·0.	Declination 1886·0.	Authority.
	h m s	° ′ ″	
1	13 7 50·01	− 0 30 56·2	10 mag. Equat. diff. from ✳ *a*.
a	13 13 7·91	− 0 40 3·1	Copeland and Börgen 3986.
2	13 9 29·76	− 1 8 33·9	Copeland and Börgen 3979.
3	13 11 36·07	− 1 4 56·8	Copeland and Börgen 3982.
4	13 12 12·01	− 1 44 34·8	9 mag. one Equat. diff. from ✳ *b*.
b	13 18 31·41	− 1 42 54·3	Copeland and Börgen 3996.
5	13 16 (58)	− 2 20	10 mag.
6	13 29 29·82	− 4 20 58·5	W.B. xiii. 465.
7	13 42 41·32	− 6 56 12·3	10½ mag. Equat. diff. from ✳ *c*.
c	13 44 33·32	− 7 1 50·7	Schjel. 4937–8.
8	14 7 44·29	−11 5 33·5	10 mag. Equat. diff. from ✳ *d*.
d	14 4 34·19	−11 5 55·9	W.B. xiv. 33.
9	15 0 47·57	−19 46 54·0	Oeltz. Arg. S. 14264–5.
10	15 8 31·10	−20 24 55·9	9½ mag. Equat. diff. from ✳ *e*.
e	15 9 13·15	−20 30 50·7	Oeltz. Arg. S. 14402.
11	15 11 8·88	−21 9 7·6	Wash. Zones 255–18.
12	15 17 15·60	−21 56 40·7	9 mag. Equat. diff. from ✳ *f*.
f	15 14 56·45	−21 55 55·1	Oeltz. Arg. S. 14484.
13	15 22 22·77	−22 32 4·8	9½ mag. Equat. diff. from ✳ *g*.
g	15 20 30·67	−22 29 23·1	Oeltz. Arg. S. 14561.
14	15 52 0·95	−26 0 59·3	9 mag. Equat. diff. from ✳ *h*.
h	15 48 36·85	−25 55 43·6	Stone 8647.
15	15 56 47·89	−26 40 41·1	½ (C.Z. 3944 + Eq. diff. C.Z. 4023).
16	16 1 7·41	−27 25 27·3	C.Z. xvi. 30.
17	16 20 10·10	−29 12 14·0	½ (C.Z. 1357 + Eq. diff. C.Z. 1559).
18	16 24 52·17	−29 48 31·1	½ (C.Z. 1653 + Eq. diff. C.Z. 1592).
19	18 1 39·62	−35 56 22·6	9½ mag. Equat. diff. from ✳ *k*.
k	17 58 41·47	−36 1 36·7	½ (Stone 9855 + C.Z. 3937).

Comp. Star No.	R.A. 1886·0.	Declination 1886·0.	Authority.
	h m s	° ′ ″	
20	18 22 (13)	−36 35	$9\frac{1}{2}$ mag. = ⋆ l. $\begin{cases} +2^m 16^s\cdot00. \\ -1' 28''\cdot7. \end{cases}$
l	18 19 (57)	−36 33	9 mag.
21	18 29 35·34	−36 47 0·0	$9\frac{1}{2}$ mag. Equat. diff. from ⋆ m.
m	18 36 25·26	−36 49 39·5	Stone 10182.
22	18 42 48·08	−36 56 36·4	C.Z. xviii. 2375.
23	18 48 27·34	−37 1 8·1	C.Z. xviii. 2633.
24	19 34 39·04	−36 53 43·7	$\frac{1}{2}$(C.Z. 1443 + Stone 10615).
25	19 49 (28)	−36 40	$9\frac{1}{2}$ mag.
26	20 2 23·42	−36 21 57·0	$9\frac{1}{2}$ mag. Equat. diff. from ⋆ n.
n	20 3 42·19	−36 23 12·4	Stone 10813.
27	21 2 (0)	−33 45	$9\frac{1}{2}$ mag. = ⋆ o $\begin{cases} -0^m 37^s\cdot50. \\ -4' 42''\cdot2. \end{cases}$
o	21 2 (38)	−33 40	$9\frac{1}{4}$ mag.
28	21 10 10·21	−32 25 49·4	C.Z. xxi. 608.
29	21 27 45·01	−31 42 31·8	$9\frac{1}{2}$ mag. one Equat. diff. from ⋆ p.
p	21 35 15·81	−31 46 43·8	C.Z. xxi. 1065.
30	21 45 34·40	−30 21 5·6	10 mag. Equat. diff. from ⋆ q.
q	21 43 59·27	−30 16 40·5	C.Z. xxi. 1353.
31	21 52 56·62	−29 36 1·8	$\frac{1}{2}$(C.Z. 1644 + Stone 11567).
32	21 59 42·80	−29 15 32·6	C.Z. xxi. 1870.
33	22 8 16·71	−28 16 13·9	$\frac{1}{2}$(C.Z. 232 + Eq. diff. Stone 11657).

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Comet 1886 e .... (Finlay).

1886.	Cape Mean Time.	Comet—Star. Δα	Δδ	No. of Comps.	Observer.	Comet's App. R.A.	Log. (p×Δ)	Comet's App. Decl.	Log. (p×Δ)	Red. to App. Place.		Star of Comp.
	h m s	m s	′ ″			h m s		° ′ ″		s	″	
Sept. 26	9 14 40.8	−1 29.21	+1 38.1	14.12	F	17 2 1.78	9.7046	−26 4 10.5	0.5069n	+1.82	+4.2	1
27	8 28 10.1	+0 49.66	−1 19.9	12.10	F	17 4 20.63	9.6628	−26 7 8.4	0.4266n	+1.80	+4.3	1
27	9 38 24.5	+0 56.56	−1 26.5	8.8	F	17 4 27.53	9.7220	−26 7 15.0	0.5528n	+1.80	+4.3	1
29	9 19 7.7	+1 55.16	−2 29.0	6.6	F	17 9 19.54	9.7129	−26 13 4.9	0.5247n	+1.78	+4.5	2
30	7 56 12.6	+0 25.06	−4 25.7	24.16	F	17 11 42.50	9.6253	−26 15 46.0	0.3690n	+1.78	+4.7	3
Oct. 1	7 53 16.0	−0 5.93	+0 32.4	6.6	F	17 14 15.87	9.6231	−26 18 30.4	0.3647n	+1.78	+4.8	4
2	7 30 48.6		+1 54.2	0.4	F			−26 21 5.1	0.3212n	+1.76	+4.8	5
2	8 2 19.4	+2 31.03		15.0	F	17 16 53.96	9.6389			+1.76	+4.8	5
5	7 57 55.6	+2 3.21	+2 5.4	10.8	F	17 24 59.05	9.6383	−26 28 1.4	0.3816n	+1.75	+5.2	6
10	7 43 26.3	+0 46.50	−0 25.3	4.4	F	17 39 22.17	9.6246	−26 36 19.3	0.3597n	+1.74	+6.0	7
15	7 39 44.4	+0 13.67	−2 11.6	16.12	F		9.6260		0.3594n	+1.72	+6.7	8
18	7 42 50.8	+0 36.83	+1 42.1	20.12	F	18 4 48.96	9.6337	−26 38 6.7	0.3711n	+1.71	+7.2	9
19	7 42 36.9	−0 57.66	+0 25.7	16.12	F	18 15 10.78	9.6339	−26 34 12.9	0.3715n	+1.72	+7.4	10
21	8 0 49.3	−1 54.99	−4 3.8	16.12	F	18 15 10.78	9.6600	−26 34 12.0	0.4119n	+1.72	+7.7	11
21	8 0 49.3	−2 24.65	−1 16.4	16.12	F	18 18 44.74	9.6600	−26 32 10.4	0.4119n	+1.72	+7.7	12
22	8 15 25.9	+1 9.33	+0 45.1	23.12	F		9.6774		0.4422n	+1.72	+7.8	12
26	7 52 23.1	−1 28.60	+3 14.9	10.8	F	18 33 17.51	9.6504	−26 20 39.8	0.4022n	+1.71	+8.4	13
29	7 46 36.0		+1 0.7	0.4	F			−26 7 46.9	0.3958n	+1.70	+8.8	14
29	8 3 15.6	+0 34.82		10.0	F	18 44 44.74	9.6645			+1.70	+8.8	14
30	7 42 52.9		+1 55.0	0.6	F			−26 2 40.7	0.3885n	+1.70	+9.0	15
30	8 3 19.9	−0 7.99		14.0	F	18 48 38.33	9.6634			+1.70	+9.0	15